Fig. 1

Fig. 2

Fig. 3

Two Plasmids
pIN0755 + pIN0728

IRES
pIN0744

Alternative Splicing
pIN0745 or pIN0772

Two Genes
pIN0773

Two Genes
pIN0774

Fig. 4A

File : H40.AMI
Range :   1 -   329
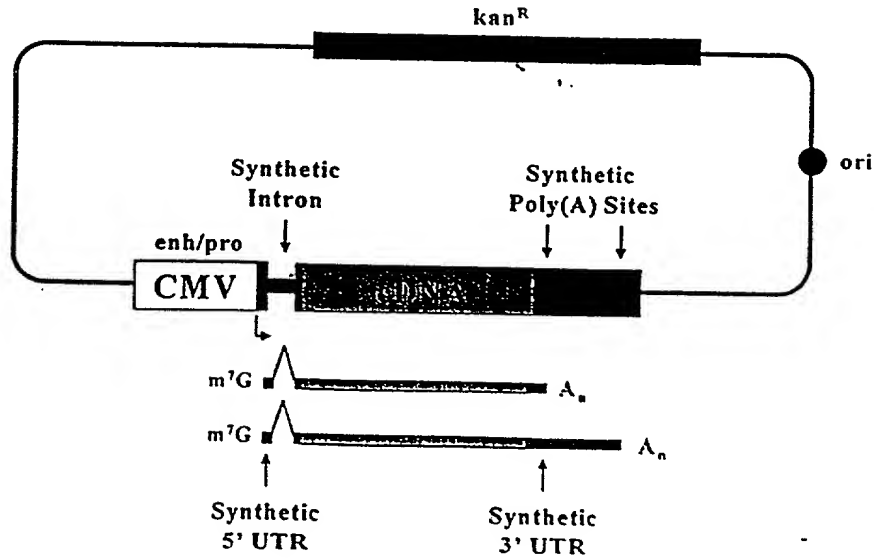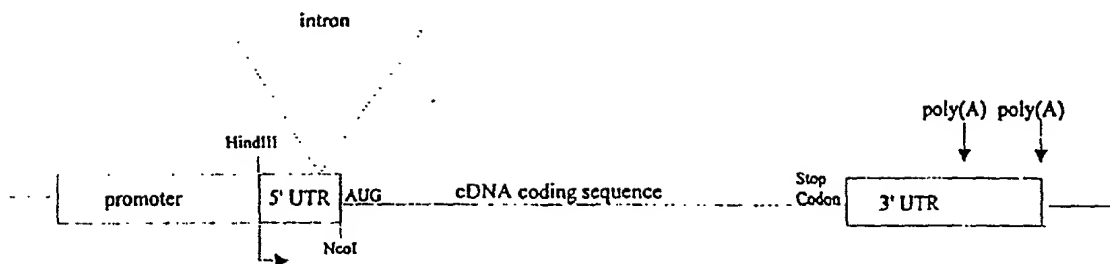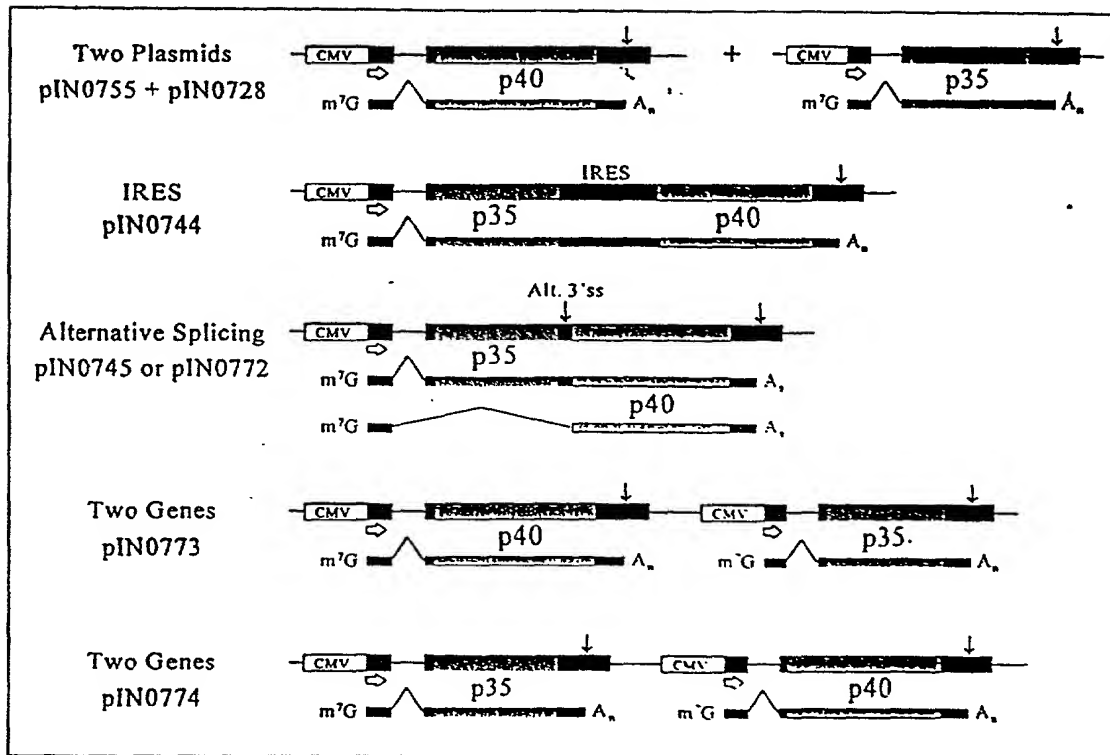Codon Table : Universal

SEQ ID NO. 1

```
                                                    10                                               20
Met Cys His Gln Gln Leu Val Ile Ser Trp Phe Ser Leu Val Phe Leu Ala Ser Pro Leu
ATG TGY CAY CAR CAR YTN GTN ATH WSN TGG TTY WSN YTN GTN TTY YTN GCN WSN CCN YTN
--- --- --- --- --- --- --- --- |--- --- --- --- --- --- --- --- --- --- --- ---
ATG TGT CAT CAA CAA TTA GTT ATT |TCT TGG TTT TCT TTA GTT TTT TTA GCT TCT CCT TTA
    TGC CAC CAG CAG TTG GTC ATC |TCC   .   TTC TCC TTG GTC TTC TTG GCC TCC CCC TTG
            CTT GTA ATA TCA        ,       TCA CTT GTA     CTT GCA TCA CCA CTT
            CTC GTG     TCG                 TCG CTC GTG     CTC GCG TCG CCG CTC
            CTA         AGT                 AGT CTA         CTA     AGT     CTA
            CTG         AGC                 AGC CTG         CTG     AGC     CTG


                                                    30                                               40
Val Ala Ile Trp Glu Leu Lys Lys Asp Val Tyr Val Val Glu Leu Asp Trp Tyr Pro Asp
GTN GCN ATH TGG GAR YTN AAR AAR GAY GTN TAY GTN GTN GAR YTN GAY TGG TAY CCN GAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GTT GCT ATT TGG GAA TTA AAA AAA GAT GTT TAT GTT GTT GAA TTA GAT TGG TAT CCT GAT
GTC GCC ATC     GAG TTG AAG AAG GAC GTC TAC GTC GTC GAG TTG GAC     TAC CCC GAC
GTA GCA ATA         CTT         .   GTA     GTA GTA     CTT             CCA
GTG GCG             CTC             GTG     GTG GTG     CTC             CCG
                    CTA                                 CTA
                    CTG                                 CTG


                                                    50                                               60
Ala Pro Gly Glu Met Val Val Leu Thr Cys Asp Thr Pro Glu Glu Asp Gly Ile Thr Trp
GCN CCN GGN GAR ATG GTN GTN YTN ACN TGY GAY ACN CCN GAR GAR GAY GGN ATH ACN TGG
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GCT CCT GGT GAA ATG GTT GTT TTA ACT TGT GAT ACT CCT GAA GAA GAT GGT ATT ACT TGG
GCC CCC GGC GAG     GTC GTC TTG ACC TGC GAC ACC CCC GAG GAG GAC GGC ATC ACC
GCA CCA GGA         GTA GTA CTT ACA         ACA CCA         GGA ATA ACA
GCG CCG GGG         GTG GTG CTC ACG         ACG CCG         GGG     ACG
                                CTA
                                CTG


                                                    70                                               80
Thr Leu Asp Gln Ser Ser Glu Val Leu Gly Ser Gly Lys Thr Leu Thr Ile Gln Val Lys
ACN YTN GAY CAR WSN WSN GAR GTN YTN GGN WSN GGN AAR ACN YTN ACN ATH CAR GTN AAR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ACT TTA GAT CAA TCT TCT GAA GTT TTA GGT TCT GGT AAA ACT TTA ACT ATT CAA GTT AAA
ACC TTG GAC CAG TCC TCC GAG GTC TTG GGC TCC GGC AAG ACC TTG ACC ATC CAG GTC AAG
ACA CTT         TCA TCA     GTA CTT GGA TCA GGA     ACA CTT ACA ATA     GTA
ACG CTC         TCG TCG     GTG CTC GGG TCG GGG     ACG CTC ACG         GTG
    CTA         AGT AGT         CTA     AGT             CTA
    CTG         AGC AGC         CTG     AGC             CTG


                                                    90                                               100
Glu Phe Gly Asp Ala Gly Gln Tyr Thr Cys His Lys Gly Gly Glu Val Leu Ser His Ser
GAR TTY GGN GAY GCN GGN CAR TAY ACN TGY CAY AAR GGN GGN GAR GTN YTN WSN CAY WSN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GAA TTT GGT GAT GCT GGT CAA TAT ACT TGT CAT AAA GGT GGT GAA GTT TTA TCT CAT TCT
GAG TTC GGC GAC GCC GGC CAG TAC ACC TGC CAC AAG GGC GGC GAG GTC TTG TCC CAC TCC
        GGA     GCA GGA             ACA             GGA GGA     GTA CTT TCA     TCA
        GGG     GCG GGG             ACG             GGG GGG     GTG CTC TCG     TCG
                                                                    CTA AGT     AGT
                                                                    CTG AGC     AGC
```

Fig. 4B

```
                                        110                                            120
Leu Leu Leu Leu His Lys Lys Glu Asp Gly Ile Trp Ser Thr Asp Ile Leu Lys Asp Gln
YTN YTN YTN YTN CAY AAR AAR GAR GAY GGN ATH TGG WSN ACN GAY ATH YTN AAR GAY CAR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TTA TTA TTA TTA CAT AAA AAA GAA GAT GGT ATT TGG TCT ACT GAT ATT TTA AAA GAT CAA
TTG TTG TTG TTG CAC AAG AAG GAG GAC GGC ATC     TCC ACC GAC ATC TTG AAG GAC CAG
CTT CTT CTT CTT             GGA ATA     TCA ACA     ATA CTT
CTC CTC CTC CTC             GGG         TCG ACG         CTC
CTA CTA CTA CTA                         AGT            CTA
CTG CTG CTG CTG                         AGC            CTG

                                        130                                            140
Lys Glu Pro Lys Asn Lys Thr Phe Leu Arg Cys Glu Ala Lys Asn Tyr Ser Gly Arg Phe
AAR GAR CCN AAR AAY AAR ACN TTY YTN MGN TGY GAR GCN AAR AAY TAY WSN GGN MGN TTY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
AAA GAA CCT AAA AAT AAA ACT TTT TTA CGT TGT GAA GCT AAA AAT TAT TCT GGT CGT TTT
AAG GAG CCC AAG AAC AAG ACC TTC TTG CGC TGC GAG GCC AAG AAC TAC TCC GGC CGC TTC
        CCA             ACA     CTT CGA         GCA         TCA GGA CGA
        CCG             ACG     CTC CGG         GCG         TCG GGG CGG
                               CTA AGA                     AGT     AGA
                               CTG AGG                     AGC     AGG

                                        150                                            160
Thr Cys Trp Trp Leu Thr Thr Ile Ser Thr Asp Leu Thr Phe Ser Val Lys Ser Ser Arg
ACN TGY TGG TGG YTN ACN ACN ATH WSN ACN GAY YTN ACN TTY WSN GTN AAR WSN WSN MGN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ACT TGT TGG TGG TTA ACT ACT ATT TCT ACT GAT TTA ACT TTT TCT GTT AAA TCT TCT CGT
ACC TGC         TTG ACC ACC ATC TCC ACC GAC TTG ACC TTC TCC GTC AAG TCC TCC CGC
ACA             CTT ACA ACA ATA TCA ACA     CTT ACA     TCA GTA     TCA TCA CGA
ACG             CTC ACG ACG     TCG ACG     CTC ACG     TCG GTG     TCG TCG CGG
                CTA             AGT         CTA         AGT         AGT AGT AGA
                CTG             AGC         CTG         AGC         AGC AGC AGG

                                        170                                            180
Gly Ser Ser Asp Pro Gln Gly Val Thr Cys Gly Ala Ala Thr Leu Ser Ala Glu Arg Val
GGN WSN WSN GAY CCN CAR GGN GTN ACN TGY GGN GCN GCN ACN YTN WSN GCN GAR MGN GTN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GGT TCT TCT GAT CCT CAA GGT GTT ACT TGT GGT GCT GCT ACT TTA TCT GCT GAA CGT GTT
GGC TCC TCC GAC CCC CAG GGC GTC ACC TGC GGC GCC GCC ACC TTG TCC GCC GAG CGC GTC
GGA TCA TCA     CCA     GGA GTA ACA     GGA GCA GCA ACA CTT TCA GCA     CGA GTA
GGG TCG TCG     CCG     GGG GTG ACG     GGG GCG GCG ACG CTC TCG GCG     CGG GTG
    AGT AGT                                             CTA AGT         AGA
    AGC AGC                                             CTG AGC         AGG

                                        190                                            200
Arg Gly Asp Asn Lys Glu Tyr Glu Tyr Ser Val Glu Cys Gln Glu Asp Ser Ala Cys Pro
MGN GGN GAY AAY AAR GAR TAY GAR TAY WSN GTN GAR TGY CAR GAR GAY WSN GCN TGY CCN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
CGT GGT GAT AAT AAA GAA TAT GAA TAT TCT GTT GAA TGT CAA GAA GAT TCT GCT TGT CCT
CGC GGC GAC AAC AAG GAG TAC GAG TAC TCC GTC GAG TGC CAG GAC TCC GCC TGC CCC
CGA GGA                             TCA GTA             TCA GCA     CCA
CGG GGG                             TCG GTG             TCG GCG     CCG
AGA                                 AGT                 AGT
AGG                                 AGC                 AGC
```

Fig. 4C

```
                                      210                                          220
Ala Ala Glu Glu Ser Leu Pro Ile Glu Val Met Val Asp Ala Val His Lys Leu Lys Tyr
GCN GCN GAR GAR WSN YTN CCN ATH GAR GTN ATG GTN GAY GCN GTN CAY AAR YTN AAR TAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GCT GCT GAA GAA TCT TTA CCT ATT GAA GTT ATG GTT GAT GCT GTT CAT AAA TTA AAA TAT
GCC GCC GAG GAG TCC TTG CCC ATC GAG GTC     GTC GAC GCC GTC CAC AAG TTG AAG TAC
GCA GCA         TCA CTT CCA ATA     GTA     GTA GCA GTA         CTT
GCG GCG         TCG CTC CCG         GTG     GTG GCG GTG         CTC
                AGT CTA                                         CTA
                AGC CTG                                         CTG
```

```
                                      230                                          240
Glu Asn Tyr Thr Ser Ser Phe Phe Ile Arg Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn
GAR AAY TAY ACN WSN WSN TTY TTY ATH MGN GAY ATH ATH AAR CCN GAY CCN CCN AAR AAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- -- --- --- --- ---
GAA AAT TAT ACT TCT TCT TTT TTT ATT CGT GAT ATT ATT AAA CC  GAT CCT CCT AAA AAT
GAG AAC TAC ACC TCC TCC TTC TTC ATC CGC GAC ATC ATC AAG CC  GAC CCC CCC AAG AAC
            ACA TCA TCA         ATA CGA     ATA ATA     CC      CCA CCA
            ACG TCG TCG         CGT             CC      CCG CCG
                AGT AGT         AGA
                AGC AGC         AGG
```

```
                                      250                                          260
Leu Gln Leu Lys Pro Leu Lys Asn Ser Arg Gln Val Glu Val Ser Trp Glu Tyr Pro Asp
YTN CAR YTN AAR CCN YTN AAR AAY WSN MGN CAR GTN GAR GTN WSN TGG GAR TAY CCN GAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TTA CAA TTA AAA CCT TTA AAA AAT TCT CGT CAA GTT GAA GTT TCT TGG GAA TAT CCT GAT
TTG CAG TTG AAG CCC TTG AAG AAC TCC CCC CAG GTC GAG GTC TCC     GAG TAC CCC GAC
CTT     CTT     CCA CTT         TCA CGA     GTA     GTA TCA         CCA
CTC     CTC     CCG CTC         TCG CGG     GTG     GTG TCG         CCG
CTA     CTA         CTA         AGT AGA             AGT
CTG     CTG         CTG         AGC AGG             AGC
```

```
                                      270                                          280
Thr Trp Ser Thr Pro His Ser Tyr Phe Ser Leu Thr Phe Cys Val Gln Val Gln Gly Lys
ACN TGG WSN ACN CCN CAY WSN TAY TTY WSN YTN ACN TTY TGY GTN CAR GTN CAR GGN AAR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ACT TGG TCT ACT CCT CAT TCT TAT TTT TCT TTA ACT TTT TGT GTT CAA GTT CAA GGT AAA
ACC     TCC ACC CCC CAC TCC TAC TTC TCC TTG ACC TTC TGC GTC CAG GTC CAG GGC AAG
ACA     TCA ACA CCA     TCA         TCA TTA ACA             GTA     GTA     GGA
ACG     TCG ACG CCG     TCG         TCG CTC ACG             GTG     GTG     GGG
        AGT             AGT             AGT CTA
        AGC             AGC             AGC CTG
```

```
                                      290                                          300
Ser Lys Arg Glu Lys Lys Asp Arg Val Phe Thr Asp Lys Thr Ser Ala Thr Val Ile Cys
WSN AAR MGN GAR AAR AAR GAY MGN GTN TTY ACN GAY AAR ACN WSN GCN ACN GTN ATH TGY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- - --- --- --- --- ---
TCT AAA CGT GAA AAA AAA GAT CGT GTT TTT ACT GAT AAA ACT TCT GCT ACT GTT ATT TGT
TCC AAG CGC GAG AAG AAG GAC CGC GTC TTC ACC GAC AAG ACC TCC GCC ACC GTC ATC TGC
TCA     CGA             CGA GTA     ACA         ACA TCA GCA ACA GTA ATA
TCG     CGG             CGG GTG     ACG         ACG TCG GCG ACG GTG
AGT     AGA             AGA                     AGT
AGC     AGG             AGG                     AGC
```

Fig. 4D

```
                                310                                    380
Arg Lys Asn Ala Ser Ile Ser Val Arg Ala Gln Asp Arg Tyr Tyr Ser Ser Ser Trp Ser
MGN AAR AAY GCN WSN ATH WSN GTN MGN GCN CAR GAY MGN TAY TAY WSN WSN WSN TGG WSN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
CGT AAA AAT GCT TCT ATT TCT GTT CGT GCT CAA GAT CGT TAT TAT TCT TCT TCT TGG TCT
CGC AAG AAC GCC TCC ATC TCC GTC CGC GCC CAG GAC CGC TAC TAC TCC TCC TCC     TCC
CGA         GCA TCA ATA TCA GTA CGA GCA         CGA         TCA TCA TCA     TCA
CGG         GCG TCG     TCG GTG CGG GCG         CGG         TCG TCG TCG     TCG
AGA             AGT     AGT     AGA             AGA         AGT AGT AGT     AGT
AGG             AGC     AGC     AGG             AGG         AGC AGC AGC     AGC


Glu Trp Ala Ser Val Pro Cys Ser ***
GAR TGG GCN WSN GTN CCN TGY WSN TRR
--- --- --- --- --- --- --- --- ---
GAA TGG GCT TCT GTT CCT TGT TCT TAA
GAG     GCC TCC GTC CCC TGC TCC TAG
        GCA TCA GTA CCA     TCA TGA
        GCG TCG GTG CCG     TCG
            AGT             AGT
            AGC             AGC
```

Fig. 5A

```
File : H35.AMI
Range :    1 -   220
Codon Table : Universal
SEQ ID NO. 5                          10                                      20
Met Cys Pro Ala Arg Ser Leu Leu Leu Val Ala Thr Leu Val Leu Leu Asp His Leu Ser
ATG TGY CCN GCN MGN WSN YTN YTN YTN GTN GCN ACN YTN GTN YTN YTN GAY CAY YTN WSN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ATG TGT CCT GCT CGT TCT TTA TTA TTA GTT GCT ACT TTA GTT TTA TTA GAT CAT TTA TCT
    TGC CCC GCC CGC TCC TTG TTG TTG GTC GCC ACC TTG GTC TTG TTG GAC CAC TTG TCC
        CCA GCA CGA TCA CTT CTT CTT GTA GCA ACA CTT GTA CTT CTT         CTT TCA
        CCG GCG CGG TCG CTC CTC CTC GTG GCG ACG CTC GTG CTC CTC         CTC TCG
                AGA AGT CTA CTA CTA             CTA     CTA CTA         CTA AGT
                AGG AGC CTG CTG CTG             CTG     CTG CTG         CTG AGC

                                      30                                      40
Leu Ala Arg Asn Leu Pro Val Ala Thr Pro Asp Pro Gly Met Phe Pro Cys Leu His His
YTN GCN MGN AAY YTN CCN GTN GCN ACN CCN GAY CCN GGN ATG TTY CCN TGY YTN CAY CAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TTA GCT CGT AAT TTA CCT GTT GCT ACT CCT GAT CCT GGT ATG TTT CCT TGT TTA CAT CAT
TTG GCC CGC AAC TTG CCC GTC GCC ACC CCC GAC CCC GGC     TTC CCC TGC TTG CAC CAC
CTT GCA CGA     CTT CCA GTA GCA ACA CCA     CCA GGA         CCA     CTT
CTC GCG CGG     CTC CCG GTG GCG ACG CCG     CCG GGG         CCG     CTC
CTA     AGA     CTA                                                 CTA
CTG     AGG     CTG                                                 CTG

                                      50                                      60
Ser Gln Asn Leu Leu Arg Ala Val Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu
WSN CAR AAY YTN YTN MGN GCN GTN WSN AAY ATG YTN CAR AAR GCN MGN CAR ACN YTN GAR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TCT CAA AAT TTA TTA CGT GCT GTT TCT AAT ATG TTA CAA AAA GCT CGT CAA ACT TTA GAA
TCC CAG AAC TTG TTG CGC GCC GTC TCC AAC     TTG CAG AAG GCC CGC CAG ACC TTG GAG
TCA         CTT CTT CGA GCA GTA TCA         CTT         GCA CGA     ACA CTT
TCG         CTC CTC CGG GCG GTG TCG         CTC         GCG CGG     ACG CTC
AGT         CTA CTA AGA     AGT             CTA         AGA         CTA
AGC         CTG CTG AGG     AGC             CTG         AGG         CTG

                                      70                                      80
Phe Tyr Pro Cys Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys Thr Ser
TTY TAY CCN TGY ACN WSN GAR GAR ATH GAY CAY GAR GAY ATH ACN AAR GAY AAR ACN WSN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TTT TAT CCT TGT ACT TCT GAA GAA ATT GAT CAT GAA GAT ATT ACT AAA GAT AAA ACT TCT
TTC TAC CCC TGC ACC TCC GAG GAG ATC GAC CAC GAG GAC ATC ACC AAG GAC AAG ACC TCC
        CCA     ACA TCA         ATA                 ATA ACA                 ACA TCA
        CCG     ACG TCG                                 ACG                 ACG TCG
                    AGT                                                         AGT
                    AGC                                                         AGC

                                      90                                     100
Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys Leu Asn Ser Arg
ACN GTN GAR GCN TGY YTN CCN YTN GAR YTN ACN AAR AAY GAR WSN TGY YTN AAY WSN MGN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ACT GTT GAA GCT TGT TTA CCT TTA GAA TTA ACT AAA AAT GAA TCT TGT TTA AAT TCT CGT
ACC GTC GAG GCC TGC TTG CCC TTG GAG TTG ACC AAG AAC GAG TCC TGC TTG AAC TCC CGC
ACA GTA     GCA     CTT CCA CTT     CTT ACA     ATA     TCA     CTT     TCA CGA
ACG GTG     GCG     CTC CCC CTC     CTC ACG             TC      CTC     TCG CGG
                        CTA CTA     CTA                 AGT     CTA     AGT AGA
                        CTG CTG     CTG                 AGC     CTG     AGC AGG
```

Fig. 5B

```
                               110                                      120
Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala Ser Arg Lys Thr Ser Phe Met Met
GAR ACN WSN TTY ATH ACN AAY GGN WSN TGY YTN GCN WSN MGN AAR ACN WSN TTY ATG ATG
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GAA ACT TCT TTT ATT ACT AAT GGT TCT TGT TTA GCT TCT CGT AAA ACT TCT TTT ATG ATG
GAG ACC TCC TTC ATC ACC AAC GGC TCC TGC TTG GCC TCC CGC AAG ACC TCC TTC
    ACA TCA         ATA ACA         GGA TCA     CTT GCA TCA CGA     ACA TCA
    ACG TCG             ACG         GGG TCG     CTC GCG TCG CGG     ACG TCG
        AGT                             AGT     CTA     AGT AGA         AGT
        AGC                             AGC     CTG     AGC AGG         AGC

                               130                                      140
Ala Leu Cys Leu Ser Ser Ile Tyr Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr
GCN YTN TGY YTN WSN WSN ATH TAY GAR GAY YTN AAR ATG TAY CAR GTN GAR TTY AAR ACN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GCT TTA TGT TTA TCT TCT ATT TAT GAA GAT TTA AAA ATG TAT CAA GTT GAA TTT AAA ACT
GCC TTG TGC TTG TCC TCC ATC TAC GAG GAC TTG AAG     TAC CAG GTC GAG TTC AAG ACC
GCA CTT     CTT TCA TCA ATA             CTT             GTA             ACA
GCG CTC     CTC TCG TCG                 CTC             GTG             ACG
    CTA     CTA AGT AGT                 CTA
    CTG     CTG AGC AGC                 CTG

                               150                                      160
Met Asn Ala Lys Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn Met Leu
ATG AAY GCN AAR YTN YTN ATG GAY CCN AAR MGN CAR ATH TTY YTN GAY CAR AAY ATG YTN
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
ATG AAT GCT AAA TTA TTA ATG GAT CCT AAA CGT CAA ATT TTT TTA GAT CAA AAT ATG TTA
    AAC GCC AAG TTG TTG     GAC CCC AAG CGC CAG ATC TTC TTG GAC CAG AAC     TTG
        GCA     CTT CTT         CCA     CGA ATA     CTT                     CTT
        GCG     CTC CTC         CCG     CGG         CTC                     CTC
                CTA CTA                 AGA         CTA                     CTA
                CTG CTG                 AGG         CTG                     CTG

                               170                                      180
Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser Glu Thr Val Pro Gln Lys
GCN GTN ATH GAY GAR YTN ATG CAR GCN YTN AAY TTY AAY WSN GAR ACN GTN CCN CAR AAR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GCT GTT ATT GAT GAA TTA ATG CAA GCT TTA AAT TTT AAT TCT GAA ACT GTT CCT CAA AAA
GCC GTC ATC GAC GAG TTG     CAG GCC TTG AAC TTC AAC TCC GAG ACC GTC CCC CAG AAG
GCA GTA ATA         CTT         GCA CTT             TCA     ACA GTA CCA
GCG GTG             CTC         GCG CTC             TCG     ACG GTG CCG
                    CTA             CTA             AGT
                    CTG             CTG             AGC

                               190                                      200
Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys Ile Lys Leu Cys Ile Leu Leu His
WSN WSN YTN GAR GAR CCN GAY TTY TAY AAR ACN AAR ATH AAR YTN TGY ATH YTN YTN CAY
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
TCT TCT TTA GAA GAA CCT GAT TTT TAT AAA ACT AAA ATT AAA TTA TGT ATT TTA TTA CAT
TCC TCC TTG GAG GAG CCC GAC TTC TAC AAG ACC AAG ATC AAG     TGC ATC TTG TTG CAC
TCA TCA CTT             CCA             ACA     ATA     CTT     ATA CTT CTT
TCG TCG CTC             CCG             ACG             CTC         CTC CTC
AGT AGT CTA                                            CTA         CTA CTA
AGC AGC CTG                                            CTG         CTG CTG
```

Fig. 5C

```
                                            210                                              220
Ala Phe Arg Ile Arg Ala Val Thr Ile Asp Arg Val Thr Ser Tyr Leu Asn Ala Ser ***
GCN TTY MGN ATH MGN GCN GTN ACN ATH GAY MGN GTN ACN WSN TAY YTN AAY GCN WSN TRR
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
GCT TTT CGT ATT CGT GCT GTT ACT ATT GAT CGT GTT ACT TCT TAT TTA AAT GCT TCT TAA
GCC TTC CGC ATC CGC GCC GTC ACC ATC GAC CGC GTC ACC TCC TAC TTG AAC GCC TCC TAG
GCA     CGA ATA CGA GCA GTA ACA ATA     CGA GTA ACA TCA     CTT     GCA TCA TGA
GCG     CGG     CGG GCG GTG ACG         CGG GTG ACG TCG     CTC     GCG TCG
        AGA     AGA                     AGA         AGT CTA         AGT
        AGG     AGG                     AGG         AGC CTG         AGC
```

Fig. 6

Codon Frequency Tables

human__high.cod

Codon usage for human (highly expressed) genes 1/24/91.

AAcid	Codon	Number	/1000	Fraction	..
Gly	GGG	905.00	18.76	0.24	
Gly	GGA	525.00	10.88	0.14	
Gly	GGT	441.00	9.14	0.12	
Gly	GGC	1867.00	38.70	0.50	
Glu	GAG	2420.00	50.16	0.75	
Glu	GAA	782.00	16.42	0.25	
Asp	GAT	592.00	12.27	0.25	
Asp	GAC	1821.00	37.73	0.75	
Val	GTG	1866.00	38.68	0.66	
Val	GTA	131.00	2.71	0.05	
Val	GTT	198.00	4.10	0.07	
Val	GTC	726.00	15.49	0.25	
Ala	GCG	652.00	13.51	0.17	
Ala	GCA	486.00	10.12	0.13	
Ala	GCT	654.00	13.56	0.17	
Ala	GCC	2057.00	42.64	0.53	
Arg	ACG	512.00	10.61	0.18	
Arg	ACA	298.00	6.18	0.10	
Ser	ACT	354.00	7.34	0.16	
Ser	ACC	1171.00	24.27	0.34	
Lys	AAG	2117.00	43.88	0.82	
Lys	AAA	471.00	9.76	0.18	
Asn	AAT	314.00	6.51	0.22	
Asn	AAC	1120.00	23.22	0.78	
Met	ATG	1077.00	22.32	1.00	
Ile	ATA	88.00	1.82	0.05	
Ile	ATT	315.00	6.53	0.18	
Ile	ATC	1368.00	28.36	0.77	
Thr	ACG	405.00	8.40	0.15	
Thr	ACA	373.00	7.73	0.14	
Thr	ACT	358.00	7.42	0.14	
Thr	ACC	1502.00	31.13	0.57	
Trp	TGG	652.00	13.51	1.00	
End	TGA	109.00	2.26	0.55	
Cys	TGT	325.00	6.74	0.32	
Cys	TGC	706.00	14.63	0.68	
End	TAG	42.00	0.87	0.21	
End	TAA	46.00	0.95	0.23	
Tyr	TAT	360.00	7.46	0.26	
Tyr	TAC	1042.00	21.60	0.74	
Leu	TTG	313.00	6.49	0.06	
Leu	TTA	76.00	1.58	0.02	
Phe	TTT	336.00	6.96	0.20	
Phe	TTC	1377.00	28.54	0.80	
Ser	TCG	325.00	6.74	0.09	
Ser	TCA	165.00	3.42	0.05	
Ser	TCT	450.00	9.33	0.13	
Ser	TCC	958.00	19.86	0.28	
Arg	CGG	611.00	12.67	0.21	
Arg	CGA	183.00	3.79	0.06	
Arg	CGT	210.00	4.35	0.07	
Arg	CGC	1086.00	22.51	0.37	
Gln	CAG	2020.00	41.87	0.88	
Gln	CAA	283.00	5.87	0.12	
His	CAT	234.00	4.85	0.31	
His	CAC	870.00	18.03	0.69	
Leu	CTG	2886.00	59.82	0.64	
Leu	CTA	166.00	3.44	0.03	
Leu	CTT	234.00	4.83	0.05	
Leu	CTC	1276.00	26.45	0.26	
Pro	CCG	482.00	9.99	0.17	
Pro	CCA	456.00	9.43	0.16	
Pro	CCT	566.00	11.73	0.13	
Pro	CCC	1410.00	29.23	0.44	

Fig. 7

Fig. 8

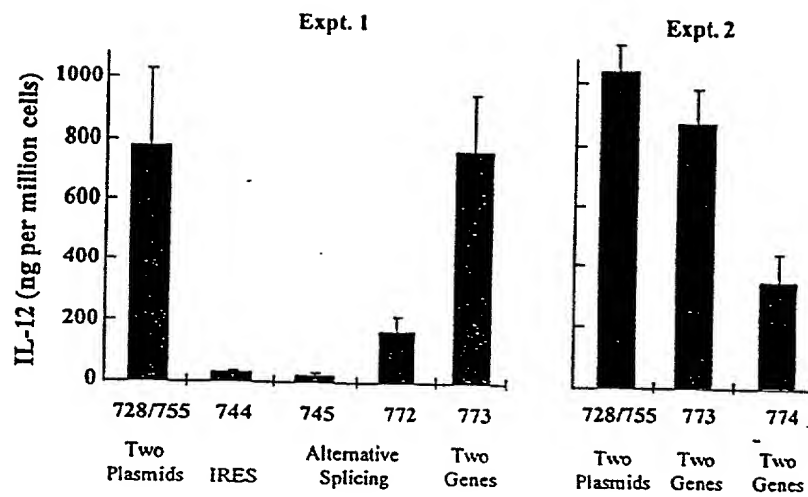(Figures in the parentheses indicate mean diameter of the complexes)
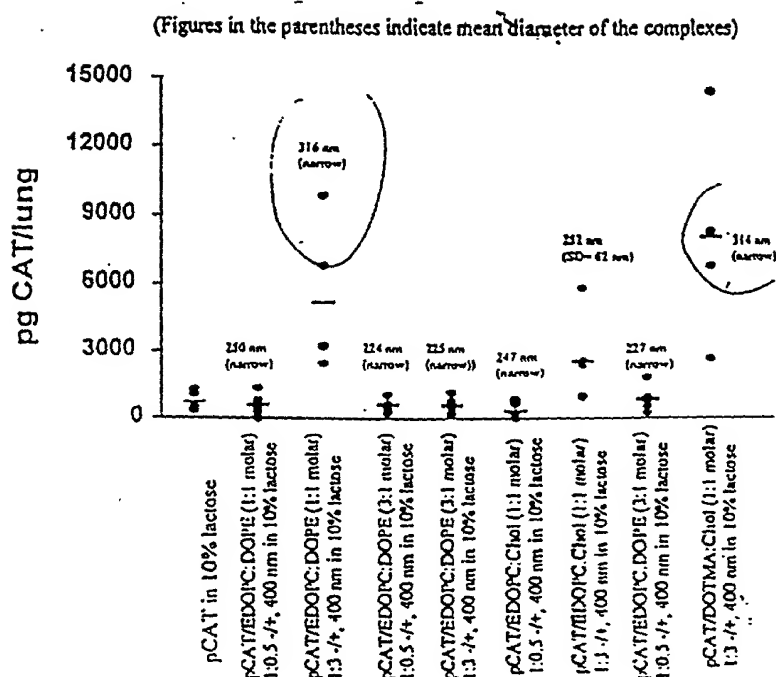
Fig. 9

(pCT0129.095:DOTMA/CHOL 1:3 -/+ 10% Lactose)
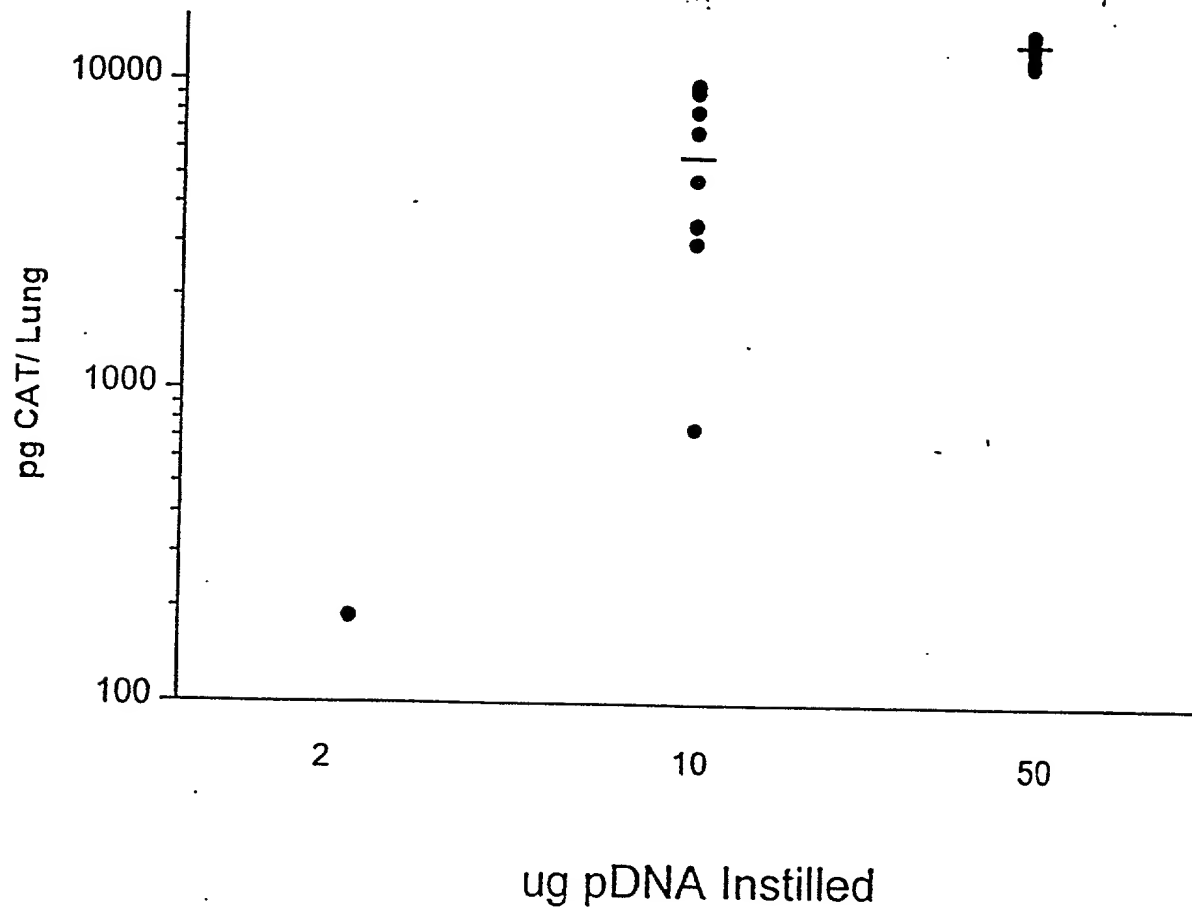
Fig. 10

Antigen-Induced Airway Inflammation Model in Guinea Pigs

Day 0	Day 14		Day 21	6hr	24hr

10 ug OA/1 mg Al(OH)₃ 0.5 mL PBS s.c.

Instillation or Nebulization of Human IL-12 Gene Medicine

Antigen Challenge: 0.1% OA, 30 min nebulization

M   M
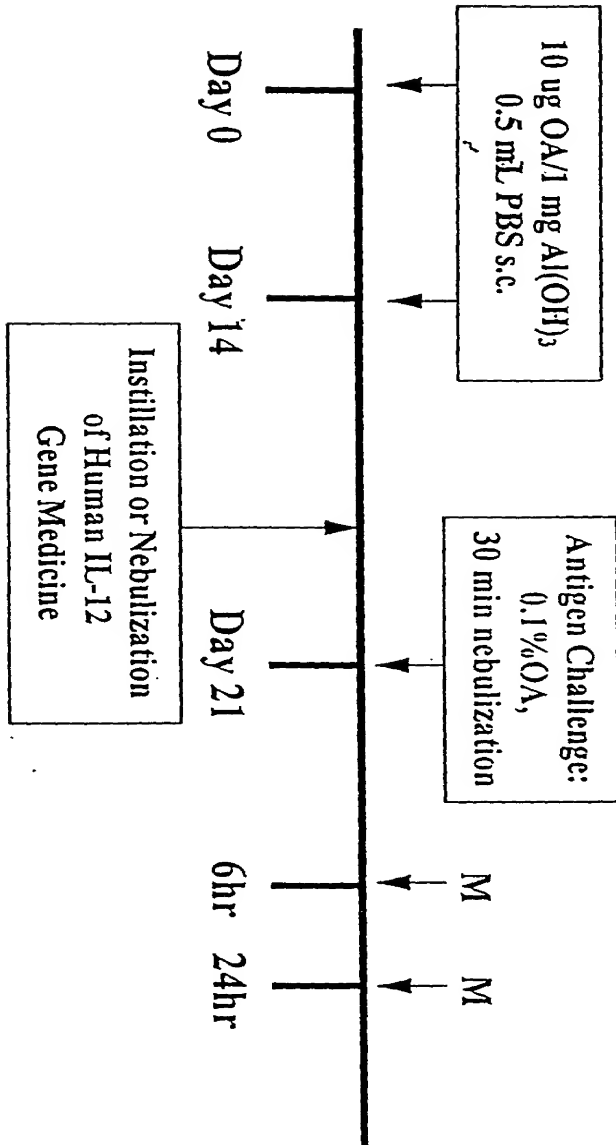
M (measurement) = bronchoalveolar lavage total and differential cell count

Fig. 11

BAL(x 10^6)/Animal

Legend:
- Macrophages
- Eosinophils
- Neutrophils
- Lymphocytes
- Total BAL Cells

pCT0129:lipid (100, 50, 10)

pIN0773:lipid (100, 50, 10)

OA/Dex   OA   No Chal.